Scientific American.

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THE
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Poetry.

WE WATCHED HER BREATHING.

BY THOMAS HOOD.

We watched her breathing through the night,
Her breathing soft and low,
As on her breast the wave of life
Kept heaving to and fro.

So silently we seemed to speak,
So slowly moved about,
As we had lent her half our powers
To eke her baing out.

Our very hopes belied our fears,
Our fears our hopes belied;
We thought her dying when she slept,
And sleeping when she died.

For when the morn came, dim and sad,
And chill with earthly showers,
Her quiet eyelids closed ;—she had
Another morn than ours.

MARY'S WHITE ROSE.

"Oh ! train it to my window,—
To my window, father dear !"
Thus rang the voice of beauty,
In accents sweet and clear.

So, the doating father train'd it,
And pruned the withering leaves,
Until the vigorous tree aspir'd
Exulting towards the eaves.

Yet when in summer glory
With all its clusters rare,
It look'd into her casement,—
Alas ! she was not there.

They pull'd its first born blossoms,—
Full, fragrant orbs of snow,—
And o'er her pillow strew'd them,
A rich and lavish show.

But she stretched no hand to take them
These flow'rets of her love,—
No ! she had risen to gather
The Angel Rose above.

Memory.

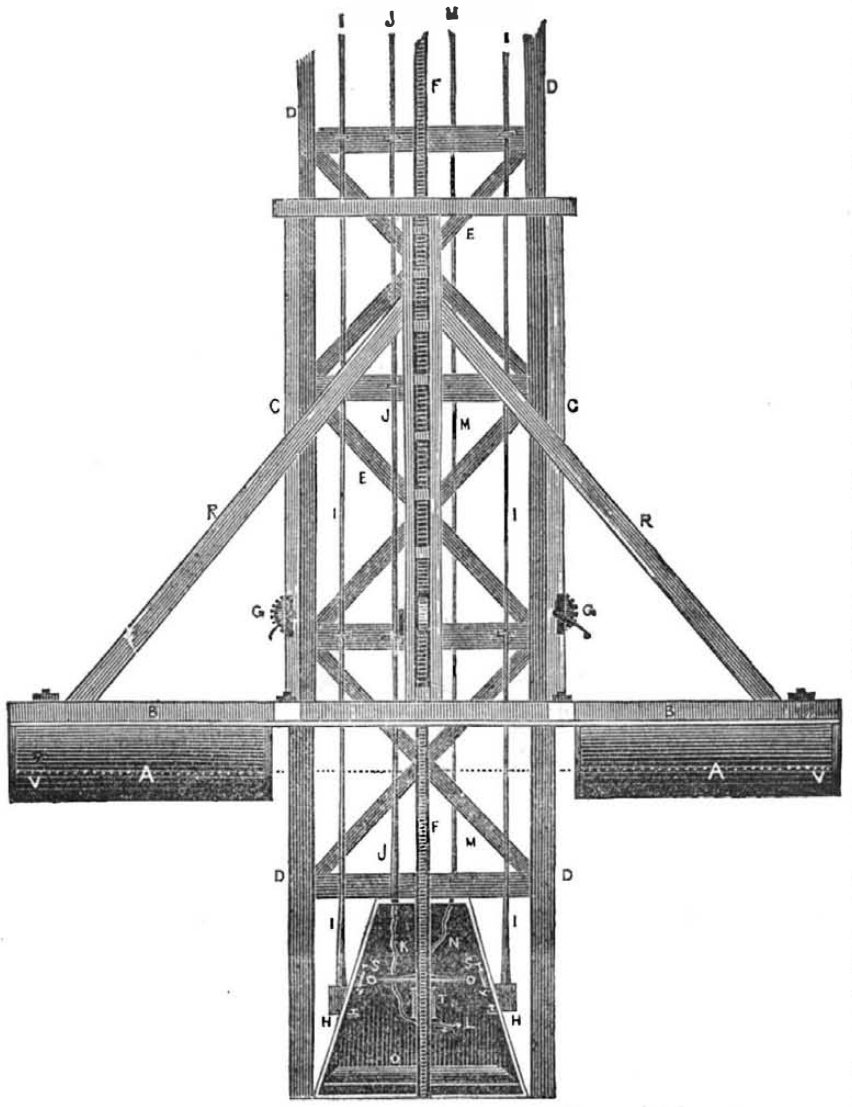
Of all the early hours I knew,
Hours that so sweetly, swiftly flew,
Why does one only thing remain
To turn the lovely past to pain—
'Tis Memory !

When all my hopes, like dreams, passed by
Why didst not thou too, Memory, fly—
Fly from my heart nor thus remain
To turn hope, heart, and life to pain,
Oh Memory !

Belles and Dahlias.

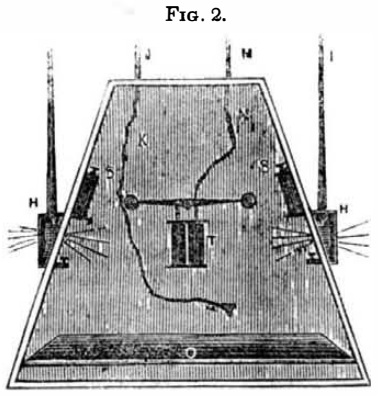
A modern writer says, that "dahlias are like the most beautiful women without intellectuality ;—they strike you with astonishment at their exterior splendor, but are miserably destitute of those properties which distinguish and render agreeable less imposing flowers. Had nature given the fragrance of the rose or stock to the Dahlia, it would have been the most magnificent gem of the garden—but, wanting scent, it is like a fine woman without mind."

IMPROVEMENT IN DIVING BELLS.---Figure 1.



This is a valuable improvement in Diving Bells, invented and patented by Dr. J. Rutherford Worster, of Baltimore, Md., who has in- received numerous testimonials from eminent gentlemen respecting the merits of his invention. The improvements relate to a new plan of operating the same, which must revolutionize the whole system of submarine explorations and operations. The old Diving Bells, were pondrous machines of immense strength, made of cast or wrought iron to sink by their great weight, and carry down a great quantity of compressed air. They used to be lowered by chains or ropes swung from a vessel, and therefore in rapid currents were perfectly inoperative and dangerous. This diving bell need not be made very heavy—it can be lowered perfectly steady in the most rapid currents—the water does not rise above an inch or two on the bottom. It can sit perfectly

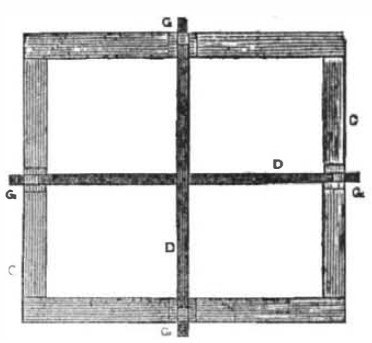
FIG. 2.



steady on the most uneven bottom, as it does not depend on that to sustain it. It is lighted with artificial light and is abundantly provided with fresh air. The invention consists of a perpendicular stationary scaffold, erected on a scow or oetween two, and a sliding frame to which the bell is attached below, which runs in grooves in the side of the scaffold operated by rack and pinion to apply an unlimited power to force the bell steadily downwards into the water, and raise it in the same manner.

Fig. 1 is a front elevation, fig. 2 is a vertical section of the Bell showing its interior, and fig. 3 is a top view, looking down upon the frame and scaffold. The same letters indicate like parts. A A, are the floats B B, transverse beams of the scaffold, and D D, are uprights of the moveable frame made secure by diagonal braces E E. The uprights D D,

FIG. 3.



move in guide grooves formed by two or four upright posts connected by ties. On the edges of D D, are racks indicated in front by F. G, are pinions on the scaffold, which are operated by cranks, and by biting into the racks elevate and lower the bell and moveable platform. R R, are two diagonal braces of the scaffold. I I, are tubes to carry off the smoke from the lamps H H. These lamps have oil reservoirs S S, which regulate the supply by two cocks, and the air to the lamp can be regulated by another cock below. J, is the speaking tubes with a mouthpiece L. M, is the air tube, and T, the air pump. These tubes are made of metal above the bell, but connected with flexible tubes K N, inside.—O, is the bell platform. V V, the water line. This apparatus is all made in sections, and can be taken to pieces and packed in a very small compass. How excellent it would be for the rapid Mississippi. In describing the parts it is useless to use prolixity, the engraving at once explains the whole arrangement. The inventor has numerous plans of economic construction which make the apparatus cheap, and the scaffold need not be very high, for moveable section parts may be slid on to the moveable frame, as it passes down to different depths. The Doctor intends to go with it to California, and he has had numerous valuable proposals made. Success is sure to attend his efforts.

RAILROAD NEWS.

Railroads in the West.

Charters for a railroad from Toledo, through Southern Michigan and around the southern bend of Lake Michigan, to Chicago, have been secured by a company of New York capitalists. A railway from Chicago west to the Mississippi is being constructed. It is expected that the Ohio Railroad Company will be soon revived, under its charter, and the line from Toledo to Dunkirk completed at an early day.

Boston and Montreal Railroad.

A meeting of the Stockholders of the Boston, Concord and Montreal Railroad was lately held, when it proposed to borrow $300,000 upon bonds for present exigencies. The general report was that the Road was doing well. The Company have no money contracts to build the Road beyond Plymouth, but the contractor on that section is going on moderately, taking his pay in the stock of the corporation. New surveys have been made, by which a saving of some $75,000 has been made between Meredith and Wentworth, on the line toward Haverhill.

The receipts of the New York and Erie Railroad have increaed to about $200 per day since it was opened to Oswego, a short time ago.

The Directors of the Vermont Central Railroad have voted to issue two million more stock.

Dr. J. O Watson, of Johnston Co., N. C., has authorized the Raleigh Standard to say that he will be one of one hundred men to take the entire stock, one million of dollars, of the Central Railroad, at $10,000 each.

Great Explosion.

On the 11th inst, the steamboat Embassy collapsed both flues of her larboard boiler below Green River, near Louisville, Ky., by which 18 persons were killed, and 30 badly scalded. When are we to hear the end of this system of wholesale murder. There is an *Anti Capital Punishment Society* in this city, we would recommend them to alter their tactics and extend their efforts to the prevention of the causes which lead to the infliction of revolting legal death.

Terrific Explosion of Fireworks.

On the 12th inst. at 4 o'clock in the afternoon, the Fire Works of Mr. Samuel Jackson, Shippen st. Philadelphia, were shattered to pieces by an explosion of rockets which communicated with three kegs of powder and other explosive materials It is very singular that an accident of the same kind occurred there in 1848, on the same day and at the same hour, and Mr. Jackson had mentioned the circumstance several times in the course of the day, for the purpose of inducing care in handling the explosive materials. Two persons were considerably injured by this explosion.

There is a kind of free stone called Cocalio Land Stone, of a very beautiful appearance, now extensively quarried in Lancaster Co. Pa.

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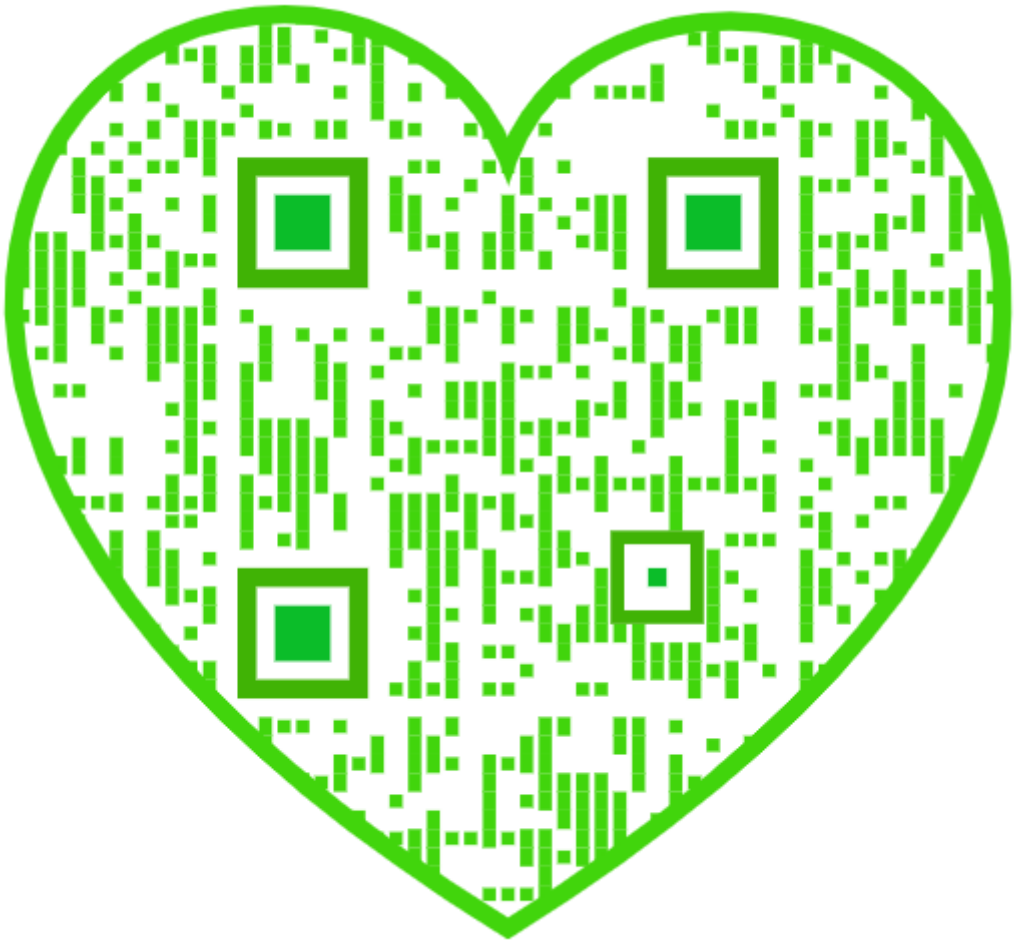

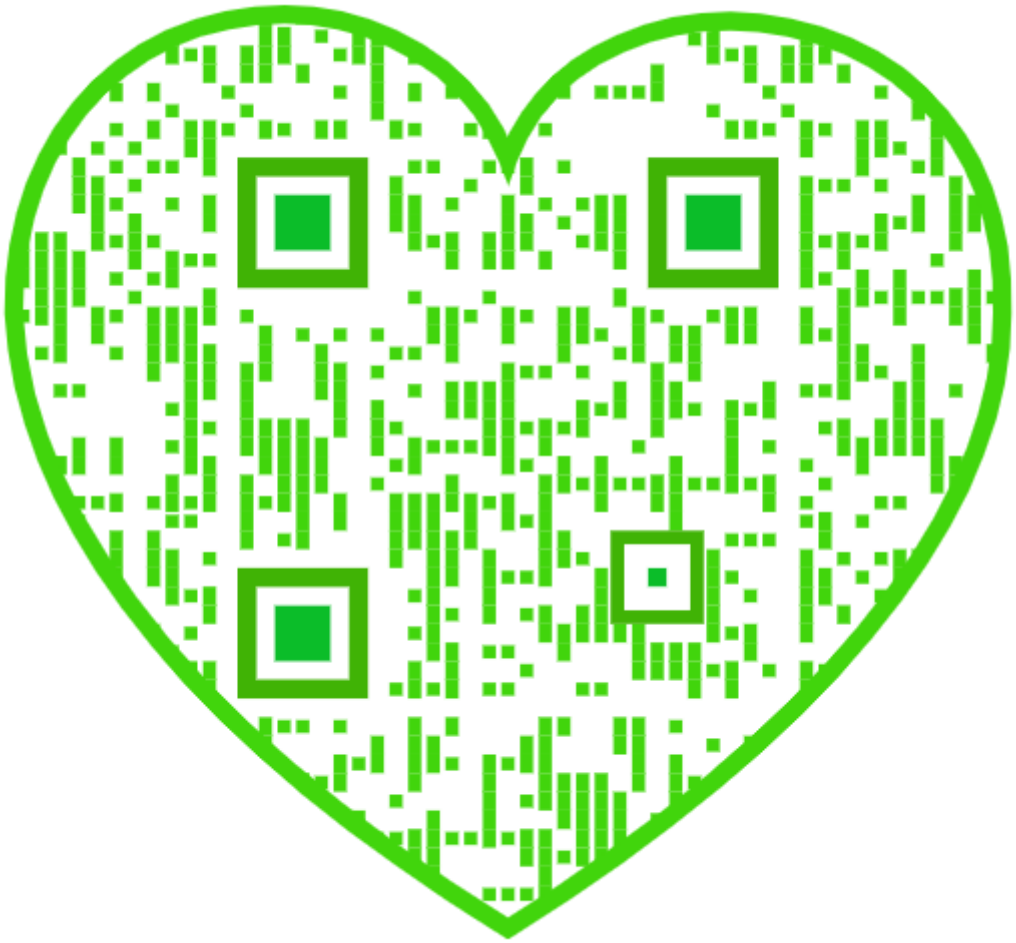

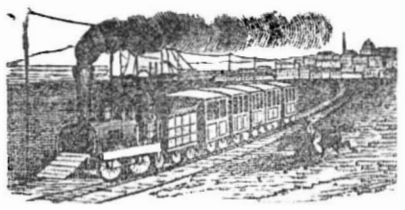

The Cholera.

The following is the correct report of the cases of Cholera in this city, for eight days, ending Wednesday morning June 20th.

Wednesday, June	13	—36 new cases,	19	deaths.	
Thursday	"	14—44 "	14	"	
Friday,	"	15—38 "	16	"	
Saturday,	"	16—27 "	14	"	
Sunday,	"	17—27 "	15	"	
Monday,	"	18—26 "	18	"	
Tuesday,	"	19—42 "	17	"	
Wednesday,	"	20—41 "	10	"	

The above will show how mild the type of Cholera is in this city. Out of a population of half a million, the Cholera has attacked but few who have not been previously debilitated by other sickness. Strangers need not be afraid of coming here. Some eminent physicians believe that we have not had a single case of real Asiatic cholera. There have been no more deaths during the last week, than there were during the corresponding week in 1848. We will give the weekly list of deaths after this.

Death of James K. Polk.

The Ex-President died at his residence near Nashville, Tenn., on the evening of the 15th inst. His disease was chronic diarrhœa. He was a man of irreproachable conduct. His character in no case was beneath the dignity of the office which he filled.

Notice.—Read This.

Dr. Chas. H. Harrison, formerly a resident of Mount Carmel, Ill., has been engaged in obtaining subscribers to the Scientific American, and also a majority of the most prominent literary newspapers published in Boston and Philadelphia. He is described in the Alton Telegraph as being a " stout, thick set man, about 40 years of age, of good address and rather prepossessing appearance." He has betrayed the confidence and recommendations of several of the best citizens of Mount Carmel, who have known him for 15 years, and through their influence and pecuniary assistance he succeeded in obtaining certificates of agency from us, and several other newspaper publishers, besides a quantity of law and medical books, for which he is now acting as agent. His certificate of agency from us will expire about the first of July, and all persons are cautioned against paying him money on our account after this date, as he is an impostor and an ungrateful scamp.

We shall furnish the paper to all who have paid him for it previous to this date, when accompanied by a certificate from the Postmaster where they reside. We would also state for the benefit of the public generally, that we recognize no travelling agents after this date. The best and only way to subscribe for any journal is to remit the amount by mail direct to the publishers. We have no agents except local, and shall take no notice of letters from persons applying as such. Newspaper publishers have been swindled enough by these travelling agents, and it is their duty to discountenance the system as much as possible. We were informed a few days since by the publishers of an excellent paper in this city, that they had been gulled out of over one thousand dollars within the last year by travelling agents. We have been severely censured within a short time for refusing to furnish our journal to those who had " paid for it," to a jackass villian who had no authority from us whatever. Publishers are not to be blamed with impunity for that over which they have no control, neither ought the public to be imposed upon by a system which perhaps more than any other in a small way, leads to fraud and deception.

We hope that our contemporaries will take this matter in hand and apply the necessary corrections. Agencies can always be established in towns, and placed in the hands of responsible men, who are permanent residents. Exchanges please notice.

Boston, June 15, 1848.

Messrs. Munn & Co.

Dear Sirs.—Having observed the advertisement of Mr. Carter, intimating that the Last Turning Machine recently invented and patented by Mr. John Kimball is an infringement on Blanchard's patent, I would in justice to the many thousands of respectable mechanics who read your paper, inform them that I have recently examined Mr. Kimball's machine in full operation, and can say with full confidence, not only that there is no feature in this machine which infringes on anything which is claimed in Blanchard's machine, but it is far superior, both with regard to the facility of its operation, and the perfection with which it copies the pattern, direct and reverse at the same time.

Yours, respectfully, Rufus Porter.

Rice Milk.

In some of the Poor Unions of the South, (says an Irish paper,) the following recipe has been adopted, by which a considerable saving is effected in the article of milk. As much as ten guineas per week are saved by the ratepayers at one of the Unions, by the following process: Steep one pound of rice in soft water, and next day boil it slowly for two or three hours, so as to reduce the liquid to one gallon, which added to one gallon of milk, makes two gallons of excellent nutritive milk, peculiarly wholesome, where dysentery is prevalent.

Georgia Yarns Going North.

The Macon Museum says: " We understand that Mr. E. Bond, of this city, has shipped from Macon for Philadelphia, since the first of January last, about 150 bales of Cotton Warp, (fifty of which were forwarded within the last two weeks,) spun by the Waynmanville Manufacturing Company, in Upson county. The warp is readily sold to the poorer classes in Philadelphia, and wove by them into cloth on the common hand looms. We notice this branch of businesss with pleasure as affording another evidence of the increasing prosperity and enterprise of our people; and if we can manufacture coarse goods here in our present, inexperienced condition, so as to compete successfully with the manufacturers at the North, at their own doors, what may we not do wnen we become more familiar with the business.

Increase of Population in the North West.

	1840.	1848.
Ohio, :	273,439	328,500
Indiana, :	116,906	152,852
Illinois, :	93,017	125,121
Michigan, :	44,068	65,016
Wisconsin, :	6,363	39,166
Iowa, : :	———	24,293
Total, :	533,783	734,938

According to this table, the increase is forty per cent in eight years, equal to 50 per cent in ten years. The population of these States in 1840, was 2,900,000, equal to the total population of the thirteen states at the period of the revolution.

Present of Medals.

A few Alumni of Princeton college have made a splendid contribution to its cabinet. It consists of a collection of ancient Greek and Roman medals imitated perfectly in a composition of sulphur. The whole number of medals —six thousand and eighty nine,—are chronologically arranged in 22 boxes. They were made by Cadelli, of Rome, for Lord Vernon, of England, and are spoken of as an admirable work of art, as well as highly valuable and interesting as a historical monument.

Mexican Books.

Gen. Scott, at the capture of the city of Mexico, seized and brought home five thousand volumes of historical works in the archives of Mexico, all in the Spanish language. Some of these are three hundred years old, and contain a perfect history of that country from its origin It is the intention of this Government to extract from this library all that may be useful in forming a complete history of the possession which we have acquired, by the treaty, to be retained in our own archives, and the books will then be sent back to Mexico.

Chemical Cholera.—Data for Investigation.

The Cincinnati Times says:—" Mr. Graselli, who has a chemical laboratory in the eastern part of the city, and manufactures large quantities of sulphuric acid, has observed an unusual phenomenon during the past two or three weeks, in relation to this manufacture. We will remark that Mr. Graselli is one of the most competent and successful practical chemists in the United States, and of great experience Until a recent date, he has had no difficulty in making sulphuric acid—and that difficulty vanished a day or two ago without any apparent cause.

In the process, the sulphur is placed in a leaden room, so to speak, and to the common atmospheric air, from eight to ten per cent. of oxygen is added, which answers the purpose. The usual proportions for a few weeks past failed, and Mr. Graselli supposing some of the workmen had been careless or tricky, attended to the matter himself, and was satisfied the work was natural and not artificial. For two or three days past, however, the old and usual condition of natural chemical affinities and proportions has returned, and affairs go on as before.

Now it is known that air is composed of a variety of gases, not chemically combined, but mixed, and that circumstances vary the proportions. The inference is, that the air underwent a change a few weeks ago, (about the time Cholera commenced,) that there was less oxygen than common, and more carbonic acid gas, which produced the effect referred to —but that within a day or two, the proportions have again been changed, (the Cholera has sensibly abated,) and a healthy condition now exists

We know very little of chemistry and may not have spoken scientifically, but we think the facts, hypothesis, and case set forth sufficiently clear, to enable competent persons to investigate the subject, or theorize upon it, if desirous of so doing. If there be any such, we should be pleased to hear from them."

[Did any body ever hear of such stuff before, such a change in the atmosphere as that spoken of above would have swept off every inhabitant in Cincinnati. But the strong evidence against it, is the practical experience of other sulphuric acid works, which never had the *Cholera*, except during times of dull trade.

A Good Disinfectant.

Dissolve one pound of chloride of lime in ten gallons of water; one gallon of this mixture thrown into the sink every day at noon, will keep the surrounding atmosphere pure and healthy; or, if preferable, half a peck of quicklime thrown into the sink every week, will have the same effect.

In crowded or damp rooms, the air may be purified by keeping a saucer full of chloride of lime, or a plate full of unslacked lime, on the floor As soon as the lime slacks it is unfit for use in rooms, but may be used to purify gutters or sinks. The chloride of lime, when it has lost the odor which distinguishes it from common lime, is no longer useful as a purifier.

When it is desirable to obtain the purifying virtue of chloride of lime in large quantity, sprinkle a little vinegar upon it. Oil of vitriol, sprinkled upon chloride of lime, will disengage the chlorine still more rapidly.—Any person can do this by taking care to pour on the acid slowly and then leave the apartment as quickly as possible, for some time.—The chloride of zinc, is perhaps the best disinfectant known, better than the lime

Gold Fish in the Hudson.

The Horticulturist for June states that this beautiful fish, originally from China, and hitherto chiefly known in ornamental ponds or glass globes in this country, has become quite naturalized in the Hudson near Newburgh.—The fishermen there have caught many fine plump and deep golded specimen, from eight to ten inches long, both in the Hudson itself and in the mouth of the Matteawan Creek, which empties into the Hudson opposite Newburgh. A quantity of this species was put into the creek about ten years ago, and have so multiplied as to fairly stock the creek and river in that vicinity.

Rich Jewels Found.

While some workmen were recently making repairs on the family mansion of the ancient and illustrious Counts of Fersen, situated in the quarter of Blasionolm, in Stockholm, Sweden, they discovered on the first story, inside a very thick wall, a box containing ornaments, rings, necklaces and other jewels, all set in diamonds, the value of which is estimated at 3,000,000 rix dollars. None of the present inhabitants of the house knew of the existence of this treasury, and information on the subject has been in vain sought for in the archives of the family of Fersen. It is the general opinion that the concealing the articles in the wall of Fersen House is to be traced to the flight to Varennes of King Louis XVI, for it is recollected that Count Axelade Fersen, at that time Swedish Minister at Paris, and who was much devoted to the Royal Family at France, assisted much in facilitating that flight, and himself, disguised as a coachman, drove the carriage in which the unfortunate monarch departed for Varennes. It was the same Count Fersen who was on the 20th June, 1810, massacred by the populace of Stockholm, because they suspected him, though very unjustly, of having poisoned Prince Holstein-Augustemburg, who, shortly before that time, had been elected Prince-Royal of Sweden, and who had just died suddenly.

Savings and Investments of Spinners and Weavers.

The May Report of the Lowell Savings Institution shows a credit of $718,916,45, to 4,-714 depositors; over an average of $152 to each depositor.

Most of these depositors are female operatives in the Lowell cotton mills, who place their weekly or monthly savings in a place of safety, where they can obtain some interest, and from which the fund can be drawn for investment in household stuff, land, or otherwise, when they leave the mill.

The cancelled checks, in this institution, show, as is said, many an instance of filial duty and fraternal affection; many an endorsement of a mortgage of paternal acres, and teachers of young men, who are now eminent in their several professions.

Gigantic Table-Land.

In Europe, the best example of this formation is the central or Castilian plateau of Spain,—a level somewhat more than 2000 feet above the sea; but how insignificant this, compared with the great Gobiplan, one of the tracts of table-land of Central Asia, having a continuous surface of 300,000 square miles, (more than four times that of France,) and an elevation nearly equal to that of the highest of the British mountains; or with those table-lands of the Andes, Quito and Desaguadera, almost co-equal in area with Ireland, and at the enormous height respectively of two miles and two miles and a half, affording a foundation to cities, villages and the industrious works of men!

Milk as an article of Diet.

It is common to regard milk as little else than mere drink. But this is an error. Milk is really an article of solid food, being coagulated soon after reaching the stomach. New milk contains thirty per cent of digestible solids, and skim milk ten per cent.; that is, the former fully one-half, the latter above a third of the nutriment contained in the lean part of beef and mutton.

Camphor in Cholera.

Dr. Kidd, of Limerick, Ireland speaking of the cholera, says he has tried everything, but has fallen back upon camphor. The camphor segars, a late invention in Paris, are said to be useful in preventing the absorption of the choleretic poison into the lungs.

The Plow.

Its one share in the bank of earth is worth ten in the bank of paper.

The coinage of gold dollar pieces, which began on the 7th ult. has reached to the number 315,700 and that it exceeds, by more than 69,000, the demand made by depositors.

A company has been formed in Savannah, Geo. for working the valuable strata of French burr mill stone, recently discovered in Jefferson Co. in that State.

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The Mineralogist.—The description and locality of every important Mineral in the United States.

(*Continued.*)

PYCNITE. (SHORLITE.)

Occurs in long crystals, longitudinally striated, and bundled; of a yellowish or reddish white color; specific gravity of 3.50; translucent; electric by heat; brittle; infusible scratches quartz; lustre shining. Found at Chester, Mass.

PYRALLOLITE.

Occurs in masses and crystals, of a greenish or white color; dull and earthy fracture; specific gravity of 2.5; translucent; when heated becomes black, then white; phosphoresces. Found at Kingsbridge, N. Y. in limestone.

PYROPE.

Occurs granular, of a blood red color with a tinge of orange; fusible; translucent; vitreous; splendent lustre; specific gravity of 3.9. Found in Chester Co. Pa.

PYROPHYSALITE. (PHYSALITE.)

Occurs in crystals and small rounded masses, of a greenish color; glimmering lustre; specific gravity of 3.40; scratched by quartz; intumesces in heat. Found at Goshen, Mass.

GRANULIFORM PYROXENE. (COCOLITE.)

Is composed of granular, distinct concretions, easily separable; of a grayish, greenish or reddish color; vitreous lustre; specific gravity of 3.3; scratches glass; fusible. Found at Charlotte, Vt.; Ticonderoga, Willsborough, Westchester and Philipstown, N. Y.

CRYSTALLIZED QUARTZ. (ROCK CRYSTAL.)

Occurs in six sided crystals, transparent, or of a white, yellowish, reddish, bluish, brownish or greenish color; specific gravity of 2.6; infusible; scratches glass. Localities: in the Notch of White Mountains, N. H.; Grafton, Vt.; Chesterfield, Abington, Williamstown, and Plainfield, Mass.; West Hartford, Ct.; Lake George, Canada Creek, Fairfield, N. Y.; Frederic Co. Md.; Newbury Dt. S. C.

FERRUGINOUS QUARLZ.

Occurs in crystals and masses, of a reddish yellowish color. Sometimes when heated becomes magnetic. Found at Litchfield, Ct.; Mentzer's Gap, Pa.

FETID QUARTZ.

Occurs in masses and crystals of a gray color; resinous lustre; and fetid odor when struck; translucent. Found at Topsham, Me.; banks of the Connecticut, from Bellows Falls, to Middletown.

GRANULAR QUARTZ.

Occurs massive, of a white or grayish white color; fine granular structure; often friable. Found at Middlebury and Vernon, Vt.; Williamstown, Mass.

GREEN QUARTZ. (PRASE.)

Occurs crystalline, of a leek green color; resinous lustre; translucent. Found at West Cambridge, Brighton, Milton, Mass.; Cumberland, R. I.; Baltimore, Md.; Lake Superior.

ROSE QUARTZ.

Occurs massive and crystallized; translucent; color fades. Found at Paris, Me.; Acworth, Keene, N. H.; Plainfield, Williamsburg, East Haddam, Mass.; Southbury, Ct.; Westchester, N. Y.

SMOKY QUARTZ.

Color, brownish yellow; translucent. Localities: Topsham, Me.; White Hills, Acworth, N. H.; Cornwall, Torrington, Ct.; Wordsborough, Shrewsbury, Vt.; Lancaster Co. Pa.

PSEUDOMORPHOUS QUARTZ.

Takes the forms of crystals or of cavities once occupied by them. Found at Southampton and Deerfield, Mass.; Simsbury, Ct.

YELLOW QUARTZ. (CITRINE.)

Occurs massive and crystallized, of a wine, honey or straw yellow color; pellucid; when heated, loses color. Found at Acworth, N. H.; Southampton, Mass.; Blue Ridge, Pa.; St. Louis, Mo.

ROOF SLATE.

Occurs in masses, of a bluish or brownish black color, splintery fracture; surface smooth, divides into plates; fusible; brittle. Found at Brattleborough, Dummerston, Rockingham, Castleton, Vt.; Charlestown, Mass.; Hoosack, N. Y.; Wayne and York Cos. Pa.

Lime strewed on pasture lands cures the hoof rot in sheep.

Motion.

BY B. F. STICKNEY.

No. 2.

There was a time, when the noise produced by the motion of the Universal Fluid was considered the immediate voice of God, and the injury (in some cases produced) was viewed as the chastisement of his creatures for their transgression. In the advancement of Science, philosophers having discovered some of their errors, acknowledged their ignorance and in agreement with Pope, say—

"Thou Great First Cause, least understood."

Whether this universal fluid, can by its motion, produce new varieties of animals and vegetables, we will not now undertake to discuss. But, that there is a universal fluid, possessed of an inherent perpetual motion, from which all motion is derived, animal, vegetable, fossil, mechanical &c. And the want of this motion would be annihilation; is the present subject of inquiry.

The object in writing these numbers, is to show that the account given by physiologists of the use of the lungs, the cause of their being set in motion, and perpetually continued; and the cause and manner of transferring this motion to the whole animal, is altogether erroneous. That receiving atmospheric air into the lungs, and expelling it without electricity, could not maintain animal life.

Nothing but inhaling a portion of the life-giving fluid, of perpetual motion, can bring into, and maintain animal existence. We will venture to extend the theory still farther. That the nerves of the lungs receive this excited fluid, and conduct it to the brain—where the machinery of the nerves creates thought,—this is the seat of government of the animal, and the nerves are the executive officers. The brain is the legislature, the spinal column acts as president and the heads of departments are located at the shoulders, kidneys, and hips. When a legislative decision has taken place in the brain, the executive power is excited with the rapidity of action of this all-prevading fluid.

After all that has been said and written about the circulation of the blood, may it not all be summed up in this one self-acting fluid in the nerves, and in the manner and degree of rapidity of the motion, of blood in the arteries. There is no physician who does not admit that all sensation is dependent on the nerves; hence attributed to this fluid; and what motion or part is not dependent upon the motion of the fluid in question!

The faculty have drowned us with a diarrhœa of names of diseases, that they do not understand alike among themselves. They have a long catalogue of names of fevers, such as yellow, red, blue, green, &c. And fever only means heat; of various colors, and so forth.

Nothing short of infinitude of motion, infinitude of variety, and infinitude of power must be attributed to this fluid. We need only mechanists of sufficient ingenuity to apply this power, to give all that the wants of man would require. To fly, to move on water, or on land, with any speed required, or any amount of burden, to fell the forest, and cultivate the earth.

Professor Page of the Patent Office, reports that he has made this all important discovery and Congress have made an appropriation of $20,000 to enable him to make further experiments, to determine the economy of his mode of applying the power.

This fluid appears in a great variety of forms the identity of which, is not yet generally recognized. For instance, the bursting of the steam boiler, although it has destroyed its thousands, it has not excited sufficient inquiry to produce a general acknowledgement that this resistless fluid is the cause. Yet, they have better evidence, than although one rose from the dead to inform them. It is as good as Franklin's evidence of the identity of the electricity of the clouds, with the fluid we are in the habit of handling, for experiment sake, and now apply to the use of speaking at a distance. We have seen the electricity drawn from the escaping steam from the boilers, and heard the thunder and lightning from within and seen the effects.

After all this, and this is but a small part of the evidence, there are millions who deny that it has a substantial existence. If we human beings know anything in creation that is the primary moving power, it is this fluid.—We see it is sufficient to suspend in space, millions of worlds, and keep them in motion, with the most perfect regularity. Its substantial power is sufficient to burst those worlds asunder. Observe earthquakes and volcanoes, thunder and lightning.

Chinese Manufactures.

Among the manufactures of China, the gold and silver tinsels of Pekin stand in the highest estimation. Their chief value arises from their possessing the property of never tarnishing in any climate. In appearance they resemble cloth of gold or silver. Various and frequent attempts have been made to discover the secret, which have all proved abortive, much to the detriment of our own manufactures, whose value would be considerably enhanced by the discovery. Tinsels are wrought of various patterns, which have all the appearance of being woven into the cloth, and not stamped upon its surface. They are constantly used in trimming their silken robes.

The beauty of the Chinese porcelain is well known, and could we introduce their colors into our manufactures, we might rival those of France. The finest specimens come from the manufactory near Pekin. The beautiful transparency and brilliancy of the white ground is supposed to be produced by an incombustible stone or earth, employed in its manufacture. If this be true, and the locality (which is said to be in the vicinity of the Yellow River were discovered, this stone, or earth, might be brought, at a comparatively trifling cost, to England, as ballast in tea-ships, as all vessels laden with tea are obliged to have a certain quantity of ballast. The beauty of the porcelain enamelling, in natural colors, upon metals, is too well known to require description; and the Chinese might here again become our instructors.

The embroidery of the Chinese is peculiar to themselves, and is not only unequalled, but is far superior to that of any other nation. The exquisite contrivance by which the figures are made to correspond on both sides of the cloth continues a profound secret. The finest specimens of embroidery are manufactured in the interior, from which we are still excluded.

The filagree work of the Chinese equals any ever produced by ancient Venice, and their chasing in silver is certainly unrivalled. The beautiful fidelity with which they represent figures, houses, &c., within a less space than a quarter of an inch, is truly astonishing. We have seen specimens of China enamelling, which surpass any which we have ever seen produced at Geneva; and their excellence is particularly exemplified in their mode of using ultra marine, which is rendered everlasting. It is said that this manufacture is chiefly confined to Nankin.

Indian and Yankee.

The water at Mackinaw is very clear and cold, so cold as to be almost unendurable. A gentleman lately amused himself by throwing a small gold coin in twenty feet of water and giving it to any Indian who would bring it up Down they plunged but after descending ten or twelve they came up so chilled that after several attempts they gave it up. A yankee standing by observed that "if he would give it to him for getting it, he'd swing it up quicker than lightning,', to which he consented; when Jonathan, instead of plunging in as was expected, quietly took up a setting pole and dipped the end in a tar barrel, reached it down to the coin and brought it up, and slipping it into his pocket, walked off, to the amazement of the Indian divers, and the no small chagrin of the donor.

The Rose.

Among flowering plants the rose is a universal favorite, the ornament and charm of both the palace and the cottage. It is symbolical of love, beauty and innocence, and has furnished lovers and poets with more comparisons and imagery than all other flowers taken together. For unknown ages it has been admired, sung of, and cultivated in Europe and Asia; nor does time seem to weaken man's love for his favorite, or to lessen his devices for rearing it in perfection.

For the Scientific American.

Garden Flowers.

Many of the Flowers in our gardens cultivated either for their beauty or fragrance have been procured from plants that grew wild and which have been improved by the gardener. Many of these came from distant countries where they grow in luxuriant wild beauty without the assistance of man. It does not appear that the Greeks and Romans used any but those which grew in their immediate neighborhood, nor does it appear that they cultivated flower gardens as we do at the present day, although flowers were great favorites with them, and were used in a number of games. A great number of the flowers which are now cultivated in Europe, are natives of Asia, Africa and America, and many of the flowers in our gardens are from different parts of the old World. There is much simple pleasure derived from wandering among flowers. In all ages they have afforded beautiful comparisons to love fraught poets. Solomon in his song mentions the Lilly of the Valley and the Rose of Sharon, and many other chaste similies of a like nature, are scattered through that singular book. The Eastern poets indulge in the same fragrant theme, and no one has surpassed the gifted Moore in his Lallah Rookh, for mingling spicy gales and odorous flowers, in almost every stanza, but Burns above all poets, has sung sweeter and more natural of fairy flowers and human hearts than them all.

Whatever pleasure there may be derived from a flower garden, one thing is certain flowers inspire the most, when not laced in corsets. The violet blooming along the foot-path through the meadow, the primrose smiling on the grassy knoll, are very different objects, from the violet or primrose hedged up with box-wood or belted with gravel. Nevertheless, when nature in boundless beauty cannot be enjoyed, it looks beautiful to see nature in floral mantle adorning the strip of soil by the door step or placed in gilded vases, smiling from the window sills. The Dahlia is a native of Mexico and was first brought to Europe by Humboldt.

The rose is a native of North America and all the nations of the old World. It is not found in South America or Australia. Our prairies in the months of May and June, are like flower gardens. Many splendid flowers now unknown to the nurseries, have yet to be introduced from the West and South West of our Continent.

A great variety of geraniums appear to be domestic favorites both on account of their perfume and beautiful garments. There is no sweeter scented flowers than the apple and lemon scented geraniums,—in fact their fragrance has a tinkling effect upon the senses—unknown to any other flower, except the blooming hawthorn, than which there is not a sweeter.

O'Flaherty and the Bees.

There happened to grow up between Patrick and a bragging downeaster, a very fierce contest as to the comparative size of different animals and insects, in this and the "ould counthry," when Mr. O'Flaherty declared that in Ireland the 'baas were as big as a ship.'

"Very well," interrupted Ichabod, how big are the hives?"

"As big as yourn, be jabbers!"

"Then how do the bees get into their hives?"

Paddy scratched his head, and after a few moments reflection, replied. "Oh, that's their lookout!"

A Statesman's Mind.

The London Examiner gives the following analysis of Mr. Gladstone's mind:

"His mind is a dialectical mill, in which everything is ground to dust. It separates and qualifies and refines, till you lose all understanding of what the thing is reduced to. The more he teaches, the less is comprehended: his arguments begin with an intelligible breadth, and then taper and taper away, finer by degrees and beautifully less, till they become impalpable to the sense. As he proceeds he attenuates till he is lost, like the Gutta Percha harness, when warm, which leaves the carriage a mile behind, the traces drawn out to the fineness of gossamer, vehicle not drawn at all."

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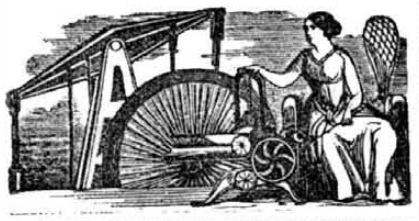


New Inventions.

Improvement in Wire Fences.

Mr. Lucius Leavensworth of Trumansburg, N. Y., has made a beautiful improvement in the construction of wire fences, which will be the means of reducing the price of their construction to a very small amount in comparison with the plan at present pursued in their erection. The invention consists of two distinct parts,—one a handy neat machine for forming the coils of wire into rings, and the other consists in the mode of constructing the fence.

Pickets are turned with circular shoulders and the ends pass through the rings formed with the other machine, when the shoulders rest on the rings and the ends being likewise embraced in the rings, a firm and neat wire fence is thus erected with astonishing rapidity. The wire used is about No. 9 or 10, and it is prepared by being boiled in oil in the usual way, or else galvanized wire may be used,--thus making it anti-corrosive and therefore very durable. He has applied for letters patent.

Improvement in Railroad Car Springs.

Mr. Wm. Beers, of New Haven, Ct., has invented an improvement on Railroad Car Springs, which promises to be good. It consists in adding to the cylinder of the compressed air spring, an elastic diaphragm or bag to contain the air in combination with the piston moving air tight in the cylinder. By this combination, the elasticity of the spring is rendered perfectly permanent. Measures have been taken to secure a patent.

New Way to Zinc Copper and Brass.

Plates and wires of copper, brass, pins, &c. may be covered with a brilliant coating of zinc by the following process of Professor Boettinger, St. Petersburgh, Russia :—

Pour melted zinc into a mortar of heated iron, and keep stirring it until it becomes solid. It is then placed in a porcelain or other non-metallic capsule and a saturated solution of sal-ammoniac is poured over it and the mixture boiled. The article to be covered must be dipped in weak chloric acid and then entered into the boiling sal-ammoniac and zinc. In a few minutes they will be covered with a brilliant coating of zinc, very difficult to remove by friction. The galvanic action in this case is thus explained. The double chloride of zinc and ammonium formed is decomposed by the zinc and the plate of copper. The chlorine disengaged from the sal-ammoniac goes to the zinc and the ammonia escapes in gas, while the undecomposed sal-ammoniac combining with the chloride of zinc to form the double chloride, a very soluble and easily decomposed salt If then an excess of zinc exists in the solution in contact with the electro negative copper, the salt is decomposed into its elements, and the reduced zinc is deposited on the negative copper.

[Iron is covered with a coating of zinc nearly in the same same way, to form what is called galvanized iron. The zinc is melted in pots in which is inserted a quantity of sal-ammoniac and when the whole is melted just at the boiling point, the iron sheets, or wire, are entered and soon covered with the zinc.—The iron should be perfectly free from scale by scouring it first in weak sulphuric acid, and after this dipped into the molten zinc. We believe that iron wires covered with zinc are excellent for telegraphic purposes, and Mr. Bain has used them successfully on some of his lines.

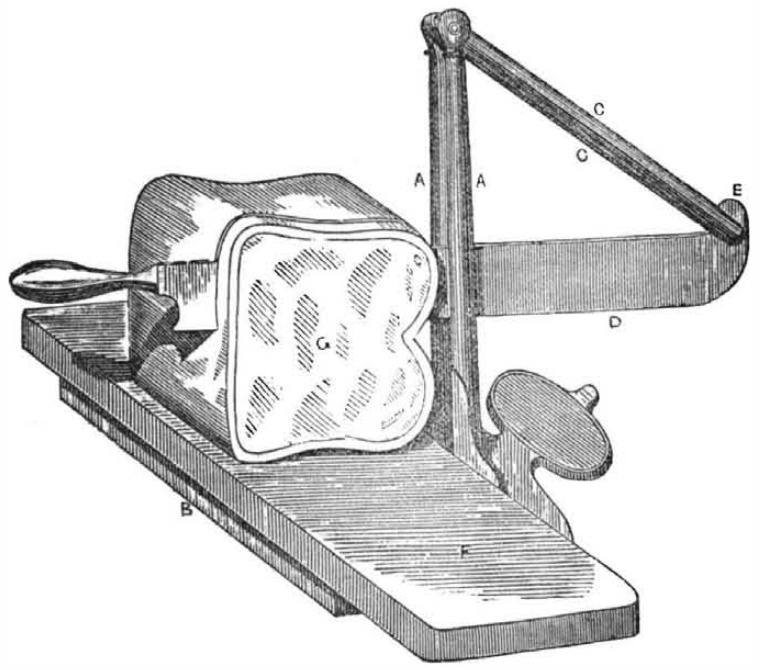
Worster's Diving Bell.

We call particular attention to the Diving Bell on our first page. The American Institute, Prof. Renwick as chairman, have made a most favorable report upon it. It willbring up more gold in the California Rivers than the most sanguine could imagine.

New Oil for Machinery.

A new process has been discovered by Messrs. J. Cumberland & Brother, which increases the lubricating or anti-friction property of oil in a remarkable degree, at the same time frees it from the tendency to become gummy when exposed to heat, and diminishes the quantity of oil necessary to be used on machinery to less than one half. Mr. J. Cumberland being a practical engineer and machinist, and having seen the necessity for a better lubricating substance for hot work, and indeed for all machinery, discovered the principle. Every means within their power have been used both to test it thoroughly and to improve it as much as possible, and with the most gratifying results. The principle of the invention consists in eliminating the glycerine which is the natural base of oils and combining a metallic base in its true chemical proportion instead. The result is an oil which comes at a lower price, lasts longer, and is a better anti-friction agent than natural oil.—They have obtained letters patent for the invention, and established their factory at Elizabethport, N. J. Messrs. Andrews & Jessup, No. 70 Pine street, this city, are their agents for its sale.

NEW PLAN OF BREAD KNIFE FOR HOTELS.



A A, are two upright posts. B F, is the board on which the loaf G, is placed. D, is the knife, connected by a pivot E, to the levers C, which works on a joint between the two posts A A. This arrangement of knife for cutting bread cannot fail to commend itself.

We are sadly deficient in improving domestic implements. An improved Churn, or Washing Machine, seems to be the end of such improvements. There is a wide field for reform in this particular, and it may be that the above engraving is the entering wedge to a series of useful improvements in domestic utensils

Removing Incrustations on Boilers.

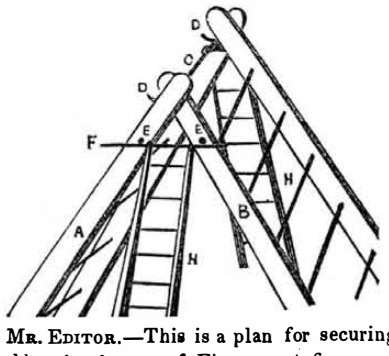
Mr. Wm. Seaton of London, has recently received a patent for removing incrustations on boilers by the following substances : Oxalic acid, carbonate of potash, or of soda, nitric, muriatic and acetic acid, these are to hold the lime of which the incrustations are formed, in solution until it is blown off. He says he may also use saw dust or charcoal, which by their mechanical action will prevent the formation of deposits. When operating on salt water, he uses soda, or saltwort. His field is a very extensive one, and is certainly not wholly new.

Electro Printing Process on Porcelain.

Mr. R. Smith, an excellent practical chemist, and an able contributor to the Glasgow Practical Mechanics Journal (North Britain,) has discovered a process for printing, coloring and gilding porcelain and earthenware, by means of electricity. The process is said to be quite distinct from the electrotype and the specimens produced—at one third the usual cost, are represented to be splendid.

Fire Ladder Application.

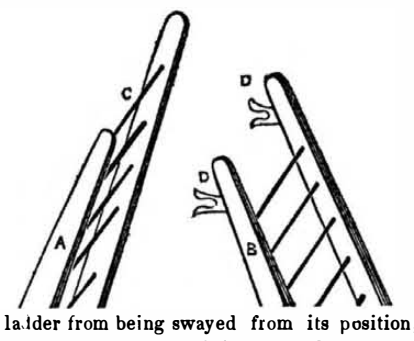
Fig. 1.



Mr. Editor.—This is a plan for securing Ladders for the use of Firemen at fires, and which works well on a small scale.

Fig. 1 is a view of the application, and fig. 2 a separate view of the principal ladders.—Ladder A is wider at the top than ladder B.—When inclined towards one another the round C, can easily be grasped and retained by the jaws D D, and consequently the two ladders will form a firm pointed arch. E E, are two pins projecting from the ladders A B, outside, and F, is a bar running through the ladders H H, which when raised with the other outside ladders, effectually prevents the arch of

Fig. 2.



ladder from being swayed from its position, and therefore the stack is secure for firemen to mount up on the middle of the street to a considerable height, by just a slight alteration of the common ladder, under this arrangement. Yours, H. M.

New York.

[We believe that H. M. has taken measures to secure his invention, which is well worthy attention.

New Perpetual Motion.

From our worthy exchange the London Patent Journal, we perceive that a Mr. Joseph Eugene Asaert, of Lille, in France, has taken out a patent in London for a new means of obtaining power, which is nothing more nor less than a perpetual motion, and a mechanical one too, for its principal features are, that a number of large weights are kept successively falling from a certain height upon an endless band, at the same time that another endless chain elevates them back again to their original position, the number of weights falling at one time being always greater than the number of those being elevated,—those falling also act at a greater leverage than those ascending, but to keep up the constant supply to the descending stream of weights the velocity of the ascents is greater than the descents.

The Patent Journal exposes the error of this machine, and to every man who has studied the principles of mechanics, it is evident that the power exerted is exactly the power expended minus the friction. The one side has the greatest weight, but the other has to have the greatest speed. What is gained by this machine? a loss by friction—no means of obtaining power. It is wonderful that the inventor in this case spent about $600 or $700 for a patent. No shrewd Yankee would do it; and what is better, this very machine was described in the Franklin Journal, more than twenty years ago. A number of such machines have been shown to us, but instead of advising the inventors to apply for patents we have told them to lay aside their projects forever.

New Press for Printing Wrappers.

By the Cincinnatti Gazette we learn that Dr. J. T. Wright, of Greenfield, Ohio, has a new press for printing the names of subscribers on newspaper rappers. The Gazette says that "it is an ingenious contrivance, indeed, whereby he says he can direct about 1800 papers an hour, and with perfect accuracy. The motion of the machine causes a series of tubes, connected together somewhat like an endless chain, and wherein are set the types forming the name and direction, to pass through and give the impression; and this endless chain is so contrived that the series of tubes, one, two, or any greater number containing the names for any post office, has passed and given their impressions, the receiver of the papers is instantly reversed in position, so as to throw the next batch of papers for another office, across the preceding batch, and so on, ad infinitum. It requires only the attendance of a boy to put on the papers, if attached to a steam engine, or if not, an additional hand to turn the crank."

It is our opinion that the above machine would be a far more expensive process than the machine of machines now used for the same purpose, viz. an expert penman.

Muntz's Improved Metal for Sheathing Ships.

In the article of "Junius Redivivus," last week, allusion is made to Muntz's improved alloy for sheathing ships. Having the specification of the patent in our possession, we hereby publish it, believing that it may be of use to many of our readers :—

"This improvement consists in adding to an alloy of copper and zinc, another suitable metal, so as to reduce the proportion of copper to less than about 60 parts of copper to 40 of zinc. The metal the patentee prefers for this purpose is lead, and the proportions best adapted for forming this alloy, are 56 parts of copper, 40 1-4 zinc, and 3 3-4 lead; the patentee prefers to use the metals, in as pure state as possible, and in making the alloy he uses more zinc than the proportion above given, to allow for loss as is well understood, and the excess of zinc should be just sufficient, so that the resulting alloy should have about the proportions above mentioned. The lead. the patentee remarks, acts a very important part, for being a substitute for a portion of the copper used in his former patent compound or alloy, and thereby lessening the expense, it causes the metal to oxydise sufficiently to keep the bottom of the ship clean, at the same time the zinc is preserved from separate action. The above proportions may be varied, but it is not advisable to reduce the proportion of copper so low as 50 parts to 40 of zinc. The alloy when ready is to be cast into ingots, and rolled into plates, which is better done at a red heat; the plates are to be annealed before using them; if the plates require to be cleaned, this may be done by dipping them in a dilute mixture of nitric and sulphuric acids, as is well understood. The patentee remarks that he is aware that lead has been used before in alloys of copper and zinc, for sheathing vessels, but not in the above proportions. The claim is for mixing metal or metals with copper and zinc, to form an alloy, for the purpose of sheathing vessels or ships, so that it shall contain less than 60 parts of copper to 40 parts of zinc, and at the same time be capable of oxydizing sufficiently to keep the bottom of the ship clean."

The Galvanized Iron Houses made in this city, 20 feet by 15, can be set down at San Francisco for $250.

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NEW YORK, JUNE 23, 1849.

A New Motive Power.

The following is a condensed description of a new motive power taken from a letter by the author, Count De Wardinsky, published in the London Mining Journal. He says:—

This new motive power surpasses by far steam, or any other power actually known; for, if we employ one cubic inch of the patented ingredient, we obtain from it no less a pressure than that of forty-six tons upon the square inch of surface. The gases evolved consist chiefly of carbonic oxide and carbonic acid gas, both gases, permanently elastic, so that passing through cold air or water, they do not collapse, but will follow the piston to the utmost limit of its work. In using this ingredient we require neither fire or water; it creates neither smoke nor any offensive effluvia, and, with the exception of a slight moisture, or pure vapor, it leaves no residum behind. Neither is there any compound in the gases which could corrode metals, as was presumed by Tschemacher, Porrett, Fordos, and Gelis, who seem to have copied from each other the supposition, "that there might be compounds of cyanogen in the gases of this ingredient, judging from the color of the flame when such gases were ignited," never telling us that the greatest portion was carbonic oxide, which gas is well known to burn with a dark blue flame, the ingredient in question, consists, in fact, of all kinds of vegetable fibres, such as cotton, flax, hemp, tow, straw, hay, paper, &c., rendered explosive by their being dipped for 14 or 15 minutes in nitric acid, strengthened by an admixture of an equal quantity of sulphuric, then well washed in pure water, and dried for about two hours. By this process all the vegetable fibres in the creation become highly explosive. This fact was first noticed by Professor Otto, of Brunswick, about fourteen years ago; and again by Pelonze of Paris, in 1838; and finally fully published in the English press about the early part of the year 1845, under the name of guncotton as it was called by Professor Schonbein, or as M. Pelonze called it, xyloidine.

Now, considering the very intense power of xyloidine, it is found to be the most tractable ingredient we know—for example, compression, or matting, suffices to limit, retard, or entirely prevent its explosion—not like gun powder, by one fired grain of which a whole mass of the same powder is instantaneously ignited and exploded; no by slighter or greater degree of compression, I have caused a long sliver of xyloidine to explode in my hand in six and seven degrees of velocity and force; or, by compressing a certain part of the sliver between my fingers, I have limited its explosion to the mere loose and carded parts of it.

The explosive qualities of this ingredient are so great, that very small quantities and small apparatus are required. For an engine of two horse power, a thread not larger in size than ladies' sewing cotton is sufficient. A thread of this size passed through either end of a piston, and divided by compression, and these parts exploded by electricity, will furnish the power. Mr. Isaac Mickle, of Camden, New Jersey, has built one of this size.—The working machinery occupies no more space than a man's hat. He also says that, "in steamboats, locomotives, &c., this must create an entire revolution, but above all this he says that he has made another discovery, which verges almost on a miracle, it is this, that carriages can be propelled on common roads without steam, fire, magnetism, air or animal power, and ships without paddles, sails or any kind of propellers whatever."

It is always cheering to stumble upon something new, especially when it is a discovery like the above, which is *sure* to place all our steam engines on the *upper shelf*, to take a long sleep as war worn veterans, good in their day, but no longer able to compete with their xyloidine dwarfish opponents than could an English longbow with a rifle. We have always said, that we just want such a moter. By it, the California balloon is no longer problematical, and although it did not depart as was promised, on the 15th of last April, yet if it starts off on the 15th of April, 1850, it will make only a year's difference and what of that. We have not been informed how Mr. Mickle's engine, at Camden, N. J., operates, and therefore cannot really say anything about it, but we hope that all the noble Count says on the subject, is true, it must be *true* you know when it comes from such high authority.

There is one discrepancy however, in the Count's account of this xyloidine which does not all agree with Prof. Schonbein. The Count says that xyloidine is the same substance which Schonbein calls *gun cotton*, but this is not so. The gun cotton was discovered by Walter Crum, of Thornliebank, Glasgow, to be pyrozylodine an essentially different composition, says Prof. Schonbein, from the xyloidine of Pelonze. According to the noble Count's statement, we must express no more doubts about perpetual motion now, as the xyloidine exploded forms a *permanent elastic gas*, and being perfectly tractable, all that we have to do is, just to explode two strips of it alternately above and below a piston in a cylinder, cutting off at half stroke and exhausting to let the gas travel back again, in an outside tube, and thus we have the same xyloidine that gave the first impulse, travelling round and round, like keeping the pudding hot, all day long, and night too if necessary.

The Count states that "a cubic inch" of his xyloidine exerts a pressure of no less than 46 tons on the square inch. Now as this is a *permanent elastic fluid not to be collapsed*, one cubic inch by the operation we have described will drive an engine of 22 and nearly a third horse power, making only 5 strokes per minute, if the stroke is 3 feet and a quarter, and if the pressure alone has only a velocity of 16 feet per minute, but as we are not enlightened on the velocity and pressure at the same time, we must stand up back to the wall on this point. As the nobleman's letter has been extensively praised in American papers, we hope that we may be excused, not for our incredulity, as that is very fully developed, but for a want of optic perceptability, which some may attribute to ozone in the New York atmosphere, and this may really be the case, at least, we are positive that it is not xyloidine.

Ames's Great Machine Factory.

At Chicopee, Mass., formerly Cabot and Chicopee, is the extensive and far famed establishment, known as the Ames Manufacturing Co. In this establishment 300 men find constant employment, at various branches of mechanical productions. There are manufactured splendid cutlery for Uncle Sam's service in the shape of "swords of metal true," every one of which is submitted to a bending force of a severe nature, and is then whipped on edge, back and flatwise on hard blocks of wood of different forms, until the experienced tester is satisfied that it can cut through a bar of steel as thick as that severed by the famous *cross hilt* of Cœur de Lion. Besides war cutlery, there is made in this establishment lathes of a superior finish, and also the well known augurs for boring pump logs—a most ingenious contrivance—invented by the father of the present gifted and gentlemanly proprietor. Machinery for the cotton and woolen manufacture is also made with an accuracy not surpassed by any machine shop in this country. At the present moment there is some beautiful machinery nearly completed for factories in progress of erection at Ireland Depot, a place about nine miles above Springfield, on the Connecticut. In fact, this establishment manufactures nearly all kinds of machinery and tools, and from the known skill of the operatives employed and the genius of the proprietor, it is not too much to say, that from the delicate hair spring and gearing of a watch, to the ponderous proportions of the mighty steam engine, all can be constructed with an accuracy of proportion and combination of parts, not outrivalled, if equalled by any establishment of the kind in the world.

Turbine Wheels of various powers, for prime moters, forms a very interesting feature in the establishment. This kind of wheels are now extensively known and used, and in many situations they are better than overshot wheels. Many factories might be erected and driven by Turbine wheels on the banks of rivers, where overshot wheels would be out of the question.

The writer of this article has no interest or desire to flatter any man, or establishment, but being on a recent excursion to Springfield he embraced the opportunity of visiting this establishment, and as he experiences delight in looking upon beautiful machinery, he felt an impulse within him to give expression to his feelings, by stating briefly what is done at the above place. W.

Lime.—Some of its Uses.

Lime has been known from the remotest ages. It is found under different forms, but as it is used and known it is the oxide of calcium. It is composed of the metal calcium 71.91; oxygen 21.09 = 100.00. In nature it is found combined with sulphuric acid and is called Gypsum and Plaster of Paris, and when in a crystalline form, it is named alabaster.—When it is combined with carbonic acid, it is chalk in one form and limestone in another, and when crystallized, it is marble. It is found scattered under these different forms in almost every country. Lime can be obtained by roasting oyster shells or any of the carbonates of lime, in a kiln. The roasting drives off the carbonic acid and what is called quicklime is the result. When sprinkled with water it becomes very hot, by the water giving out its heat in the new combination, and combining with the lime to form a hydrate. As the lime is anhydrous, it will also imbibe moisture, if exposed, from the atmosphere, and then it falls into powder. In the combination of water with lime a heat of 300° centigrade is produced—a heat sufficiently intense to ignite many combustible bodies. The hydrate of lime (slacked lime) is very sparingly soluble in water, and what is strange, cold water solves more of it than warm. One grain of lime requires 1270 grains of water at 212° to solve it, while it requires only 972 grains of water at 130°, and only 778 at 60°. Water at 32° is capable of dissolving twice as much lime as water at 212.

The hydrate of lime possesses one curious property, viz. the quality of absorbing carbonic acid gas when it is left exposed. Quicklime therefore loses its property of mixing well to form mortar, when it becomes old, if it has been exposed, for the carbonate of lime thus reformed, will not mix with water.—When lime is mixed with water, it has also the property of absorbing carbonic acid gas from the atmosphere, which is known by a scale forming on the lime vats. Tanners and Dyers know this, but few of them know the cause of such formations. It is this quality of the hydrate of lime which makes it a good disinfectant. It gives up its oxygen 28.09 and embraces the deleterious carbonic acid gas.

No bleach works, dye works or soap works, should use water impregnated with lime, for it decomposes common soaps and forms an insoluble lime base soap. Our carpet factories would do well to pay some attention to this subject, to see that they are not losing some hundreds of dollars every year. The most delicate test of lime is the oxalate of ammonia. When this is added to water supposed to contain lime, if that body is in the water, it will be thrown down in a curdy precipitate. This test will also answer for those who may wish to test the water they desire to use for steam boilers. The precipitate is but slightly soluble in water. The oxalate of ammonia, will also precipitate an oxalate of baryta, or strontia, if these substances are in the water, but they are very scarce indeed in comparison with the carbonates of lime.

The moderns use lime for a great number of purposes unknown to the ancients. It has been a great civilizer, and we do not know how we could do without it. It is kind in Providence to have made it so abundant. It is used for building our houses, for raising our food, for bleaching our clothes, and in dyeing some of the most beautiful colors. The metallurgist uses it as a flux in the separation of metals from their ores, and the glass maker uses it in his art. As a sulphate it is used to take representations of things that were and are, and as a carbonate we behold it coming from the studio of a Powers with the inspiration of ancient Greece glowing in every bounding line of beauty. In short, lime is one of those products of nature, which is so common that few do not know and fewer still reflect upon its real benefits, but we verily believe that if it was unknown, and we had no adequate substitute for it, we would be little better than the barbarians who now live in huts and roam with fish bone spears over the wilds of the Pacific Islands.

Needles.

In the manufacture of needles, the slender bars of steel are forged out by a succession of hammers, each one less in weight and quicker in stroke than its predecessor, as the motion of the hammer is alternating, the dislocating effects of its momentum when thrown into rapid vibration would be enormous, but for the contrivance of giving the hammer a double face, and causing it to strike every time it rises against a block of steel above, from which it is thrown back upon the anvil. The vibration is thus produced by a series of rebounds between two opposing surfaces. Five hundred strokes can thus be made in a minute, while the power is greatly economized and the strain upon the stalk and axle nearly annihilated.

Great Patent Case.

On the 13th inst., at Frankfort, Ky., in the United States Circuit Court, Judges McKinley and Munroe on the bench, decision was made in favor of Henry O'Rielly, giving him the privilege to use Bain's Instruments from Nashville to Louisville, which obviates the injunction, for infringement, obtained by Morse last fall over the Columbian, or Zook & Barnes' instruments, and regarding which so much was said in the newspapers.

The decision must have been rendered although we have not heard what the charge was, that Bains' telegraph, chemical, and Morse's electro magnetic, were entirely different inventions.

Free Bathing for the Poor.

The Society for the Employment and Instruction of the Poor have thrown open their Baths in the House of Industry, Moyamensing, Philadelphia, to the poor, at the nominal rate of five cents for each bath, to those able to pay, but free to the needy, whose means do not admit of this outlay. The importance of cleanliness at the present time should prompt many to avail themselves of the opportunity so liberally offered to them.

It is also proposed to adopt the same system in this city. The subject is before the Common Council. We hope to see the system adopted and carried out.

Another New Planet.

Foreign papers announce that Professor Schumacher, Altano, announces, by a circular of the 11th of May the discovery of another new planet. It was observed at Naples by Signor Gasparis, on the 12th of April. It resembles a star of the 9th or 10th magnitude and its position was near a star which appears on Steinheil's celestial chart in right ascension, 12h, 9m. 49s., and in—7 deg. 0m. 9s., and forms No. 23,098 in Lalande's catalogue. The motion of the planet was retrograde, and it was approaching the equator. This is the ninth new body (including planets' satellites) which has been added to the solar system within the last four years.

Dredging Sandusky Harbor.

The Cleveland Plain Dealer says, that the Sanduskians have voted a tax upon themselves of forty thousand dollars, and more if necessary, for the purpose of making their Bay navigable. The propeller Petrel towed up from Buffalo the other day, a dredging machine which cost $6,000, and which, it is estimated will require $3,000 more to put in operation. It is calculated to begin operations in about six weeks, and to commence at the mouth of the Bay, where a new channel is to be opened into it.

There is a kind of wood called China wood, now beginning to be extensively used in cabinet work at the South. It is a good substitute for Bay mahogany, and is a native.

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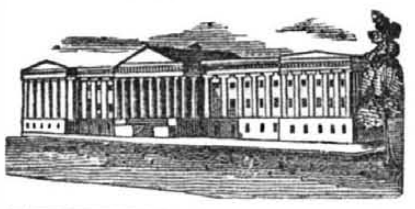

LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending June 12, 1849.

To David Deihl, of Hanover, Pa. for improvement in Seed Planters. Patented June 12, 1849.

To Nelson Platt, of Ottowa, Ills. for improvement in Harvesters. Patented June 12, 1849.

To Joseph W. Briggs, of Cleveland, Ohio, for improvement in Harness Saddles. Patented June 12, 1849.

To Alfred Stillman, of New York City, for improvement in Steam Pipes for Sugar boiling. Patented June 12, 1849.

To George Colby of Fayettsville, Pa. for improvement in Drill Barrows. Patented June 12, 1849.

To J. Adams, L. Adams & L. H. Moore, of Mass. for improvement in Machines for cutting out Felloes. Patented June 12, 1849.

To F. C. Goffin & C. Liebrick, of Philadelphia, Pa., for improved Padlock. Patented June 12, 1849.

To Reuben Murdock, of Rochester, N. Y. for improvement in Barrel machinery. Patented June 12, 1849.

To Isaac Knight of Baltimore, Md. for improvement in Trucks for Railroad Cars. Patented June 12, 1849.

To John A. Taplin, of Fishkill, N. Y. for improved construction of the master wheel of horse powers. Patented June 12, 1849.

To Jacob Mumma, of Middletown, Pa. for improvement in Corn Shellers. Patented June 12, 1849.

To Chapman Warner of Louisville, Ky. for improvement in Churns. Patented June 12, 1849.

To E. Von Heeringen, of Pickensville, Ala. for improvement in Musical Notation. Patented June 12, 1849.

To L. P. Haslett, of Louisville, Ky. for improvement in Inhalers or Lung Protectors. Patented June 12, 1849.

To J. L. Mott, of New York City, for improvement in Cooking Stoves. Patented June 12, 1849.

The History of the Solar System.

By J. P. C. Nichols, Professor of Practical Astronomy in the University of Glasgow.

(*Concluded.*)

There is a little insect called the ephemera, which lives out its lifetime in an hour. Supposing a reasoning ephemera were to contemplate the blossom, it would regard it as an absolute existence, as a thing which is thus and thus—and not as a thing which had become what it is. It would not imagine its developement from the seed down to its appearance in beauty on the tree. Man is ephemera; shall he decide of the august creation of his Maker, that it may not have a history and developement of its own? From what prior condition must we imagine the present solar system to have been evolved, in order that it may contain the arrangements and dispositions we have seen in it? This inquiry is by no means a novel one. Geologists have, with reference to our own planet alone, traced the present condition of things back to a fluid state of matter. I must go beyond that period and conceive the solar system as existing in a gaseous condition, in a chaotic, formless state. Now, in reference to the speculations in which I proceed to enter, I must say, that a great change has recently taken place. Sir Wm. Herschell thought—and with the facts then known, I see not how he could have reasoned otherwise—that many of the dim spots we see in the heavens are not clusters of stars, but accumulations of matter existing in the gaseous state. The discoveries made with the large telescope, at Parsonstown, have destroyed so much of the speculation as depended on the actual existence at the present day, of such gaseous accumulations of matter, and we reason only from the evidences of a former like condition of the solar system. The hypothesis must be accepted now, or rejected, according as it agrees with what we see around us and, also, according as it explains the phenomena for which it is required to account. The theory I am about to explain was given to the world by the great French astronomer, Laplace, than whom a greater man in this department of science has not appeared since our own Newton. The solar system may have come into being out of some nebulous mass, which has gradually condensed according to the simple laws of gravity. In order to understand what may have taken place, we must follow the condensation of this nebulous mass, and enquire what, according to known laws, would take place; and if we find that our system is just such an one as must result of necessity from laws acting under those circumstances, we shall have established a very high degree of probability for the hypothesis.—There is also one other hypothesis which we must assume at the commencement. The question is, in what condition may this nebulous mass have been in? Now to answer these we must ask, what is the great general distinguishing feature of our solar system? The answer is, the rotation of all its bodies round a common centre, and in one direction; and their own rotation on their own axis. Our supplementary hypothesis is, that the nebulæ out of which the solar system is formed existed in a state of rotation. This motion may have been very slow, and very indefinite; still it was a motion of rotation somewhat like a whirlpool. This assumption is further justifiable, because motion in a mass of matter that is condensing would, in obedience to mechanical laws, turn into a whirling motion. We assume then, that a motion of this kind existed in the nebulæ. It is a consequence of the laws of condensing bodies that this motion should become more and more definite, and the solid body coming out of this rotation will have a rotation round its own axis. The swiftness of the motion must increase as condensation goes on. Notice what condensation really means; It is simply a flow of matter from the extremity of the outer rim to the centre of the mass. As the outer particles are moving faster than those nearer the centre, if they are brought nearer to, they will increase the speed of the mass. The pironette dancer understands this mechanical law; when he wishes to astonish us by the rapidity with which he can turn round, he draws in his extended arms, and keeps them close to his body, and by that means greatly accelerates the rotation of his body. You are aware that the sun rotates on its own axis; it is an important fact, that the fixed stars, according to the belief of astronomers, rotate in a similar manner on theirs.—Rotation on an axis may be said to be the condition of steller existence; so that if these grand orbs came out of matter like our own, we may be able to explain how that motion originated. The rotation of the sun about his axis is an inherent part of our hyphothesis; but there is a question of far greater import. Does the same hypothesis apply to the forms of planets? We see how this central mass may originate, and have a rotating motion; but how do the planets arise in such a change? Let us conceive for a moment what it is that keeps up the connection of the nebulæ with the above mass. There are two forces acting upon every particle of matter on the outer rim, there is the tendency of each particle to fly off; and this tendency is counteracted by the attraction of the general mass. Now if one of these forces should ever get to be stronger than the other, the balance would be destroyed, and the connection broken. Now, the nebulæ must have had some parts of its substance less condensed than the rest; and if one part of this less condensable matter came to occupy this outer rim, it would separate itself from the mass, and fly off; we should have a separate ring of uncondensed matter. This may be illustrated by a common occurrence; it often happens that the grind-stone is driven round with so great rapidity, that what I have been supposing actually takes place; the balance between the centrifugal and centripetal forces is destroyed, and a piece of the outer circle flies off. Had this outer portion been not of stone, but a belt of elastic substance, instead of breaking into pieces it would have expanded itself, and made a separate ring at some little distance from the grindstone. Owing to the attraction of the earth, this ring would have fallen to the ground; but if the same could happen away from such a power of attraction, the ring would have revolved round the mass it had left. It is certain that from a mass composed of different portions of matter, such rings must separate themselves from the general mass of matter in course of condensation, so that ultimately a great solid globe would be left, surrounded by a number of subservient rings at different intervals of space. We now see how a dependent and separate matter may arise. Before proceeding further, let us see how far we have got. We have attained to the idea of the way in which dependent and separate matter might arise; how we might have a central globe and rotatory motion; and how, further, that rings must be thrown off from the equator of the mass.—This last fact is the explanation of the first question we proposed. How is it that all the planets move in the same plane? It is not only that all were thrown off the sun, but, that all were thrown off the sun's equator. It must be obvious that the rings would be thrown off there, and nowhere else, as the velocity and expansion would be there greatest. These rings would continue to turn round the central mass, with just the velocity it had when they left it. Further, whatever becomes of these rings, in whatever form they mould themselves, the masses they form must revolve almost in circles. We have now the explanation of three arrangements—first, of the motions of the planets all in one plane;—secondly, their motion round the sun, all in one direction; and thirdly, that they move almost in circles. The problem is then rapidly becoming simplified. We now ask—What may become of these rings: into what forms may they ultimately resolve themselves? There are three possible modes in which the rings may arrange themselves, two of which are very improbable, and still quite possible. Suppose that the outer ring had been perfectly uniform in its composition, no one portion being denser than another, then the ultimate form it would assume would be that of a solid ring; we should have solid rings moving in space round the sun. This, however, could not happen unless the ring was perfectly uniform in constitution at the time when it abandoned the mass. Such an improbable form, let me notice, we have within our own solar system—that remarkable ring round the planet Saturn, the only one with which we are acquainted. I think it is somewhat in favor of our hypothesis, if we can get evidences for it, even from the exceptions and anomalies in the facts we observe. Secondly; if the ring is not uniform at the time of leaving the mass, it must break up, and the denser portion would draw all the surrounding matter into one mass. Two things might then happen, supposing that the matter into which the ring was being drawn were so disposed as to balance each other in the circle of mutual attraction. It is clear that in that case we should have, not a ring, but a number of small bodies moving round the sun at small distances from it. This, though a perfectly possible occurrence, is one by no means likely. Singularly we have an instance of formation in the group of planets which lie between Mars and Jupiter; they are quite small, and appear to lie at the same distance from the sun. Thirdly: the mode in which a ring would be most likely to break up would be so that one denser part would absorb into itself the whole matter of the mass: the ring would resolve itself into one large body, which would assume the circular shape, and revolve round the sun. So that the general law of our system—that of a central mass, and other masses revolving round it—would be that which comes nearest to our hypothesis. We have not spoken of the rotation of bodies round their axis: these all move in the same direction. How is this to be accounted for? Let us suppose the outer rim of the masses to be broken up, and see what motion the fragments will assume. As the outer rim itself had a higher velocity than the rest of the mass, so the exterior portion of the rim has a quicker motion than the interior. When the ring is broken, the outer portions of each fragment will plunge over and over the inner portion, and cause rotation round the centre of gravity. From this fact we see the absolute necessity that every one of the planets should move in the same direction with its orbit. We have contemplated the birth and developement of this beautiful system of ours—dare we stretch our thoughts to that time when even it shall fail? If the theory laid before you to-night be the correct one, we may. You know how the planets are retained in their orbits; it is because the two opposite forces exactly balance each other. But modern astonomy has proved that there is a power at work destroying their balance.—From observations made on the retarded return of Euche's comet, and its gradual approximation to the sun, we learn the existence of a fluid, an ether, which, however subtle, tends to diminish the centrifugal force, and add to the attraction of the sun.

However slowly it may approach, we may, then, contemplate the day when this present system shall pass away; not, however, into a vast ruin, but in its own beautiful and majestic order, just like a flower, which, having adorned the earth, lets drop its leaves when its work is done, and falls back obediently on its mother's bosom.

The Pope's State Carriage.

The Pope's state carriage, a most gorgeous vehicle, commenced by Leo. XII., finished by Gregory XVI. and retouched during the reign of Pius IX., at an expense altogether of 24,000 scudi (£5,001.), was recently conveyed in great pomp from the Vatican to the Franciscan Convent of Ara Cœli, on the Capitoline hill, where it was formally made over the monks, to serve exclusively for the revered image of the infant Jesus, when carried to visit the sick and dying in various parts of the city. This image, considered by its beneficial results to be one of the most miraculous that Rome possesses, has nevertheless been hitherto borne on its charitable missions in an exceedingly shabby coach, so that the soldiers of the 'corps de garde' seldom recognized the equipage in time to present arms before it had gone by; buton that afternoon the good citizens and their wives wept with delight on beholding the *santo bambino*, attended by the guardian monks, installed in all the splendors of the papal carriage, and proceeding triumphantly down the Corso to visit the sick and wounded at the hospital San Giacomo.

LITERARY NOTICES.

The Pictorial Organ.

Messrs. Oliver & Brothers, the enterprising publishers, have just issued a splendid Pictorial as No. 1 of Vol. 9. Those who want to see a good pictorial should buy it and those who want *the* Temperance paper, edited with marked ability, should subscribe for it.

History of Wonderful Inventions.

This is a very able and useful book of the Boys' Own Library, published by Harper & Brothers. There are two volumes, 25 cents each. They should be in every family, as they are standard, and comprise a history of those things which have revolutionized society more than all the laws enacted by nations or battles won by heroes.

Our thanks are due to Drs. Wesselhœft and Grau, of the Water Cure Establishment, Brattleboro, Vt. for a copy of their very interesting Report. It states that 392 cases were treated hydropathically in 1848.

Messrs. Dewitt & Davenport have just issued a pamphlet, entitled Cholera, its Causes, Symptoms and Treatment considered and explained, by J. P. Batchelder, M. D., of New York. Some of the observations appear to us very reasonable. Price 12½ cents.

Through the politeness of Messrs. Dewitt & Davenport of this city, we have the July No. of Sartain's Magazine, which in point of excellence and beauty, fully equals if not surpasses any former number. The typography is exceedingly well executed, and the embellishments are of the highest order. We are gratified to know that this work meets an encouraging support.

Peterson's Ladies National is also on our table. "The Gentle Warning," is one of the best executed mezzotint engravings we have ever seen, "Edith," an equestrian figure, is also very pretty. This number commences a the 16th volume, and the great improvements which have been made by the enterprising publisher, we hope will not go unrewarded. The matter is always good and fascinating.—Dewitt & Davenport, Agents.

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TO CORRESPONDENTS.

"J. R. E. of S. C."—A package of back Nos. of the Scientific American," together with the balance your due, in cash, was shipped to your address by the "Southerner," last Saturday.

"G. P. F. of Ala."—There is no doubt but what the article costs all the advertisement says it did, but in reply to your first query we must answer in the negative.

"G M. of Mass."—The chain pump referred to is not a patent.

"C. M. of Camden, S. C."—We are informed by an excellent instrument maker, that it could not cost less than $25 to put your Theodolite in good order. You will be obliged to send it on before the exact amount of the expense can be calculated.

"H. T. P. of S. C."—We can send you Christopher Davy's work on Foundations, at $3,50, but we do not know whether it will suit you or not. We shall wait until we hear from you before shipping again We thank you for your continued interest in the Scientific American.

"A. M. H. of N. Y."—You have shown nothing patentable in your model. Bee hives have been constructed upon this plan before.

"E. G. of Mass."—Try and filter through carded cotton wool, or use some powdered alum to precipitate the impurities, and use only the clear. If iron is in the water, it is not easy to clear it. Quicklime precipitates it. We have seen bran boiled in a large boiler among the impure water have a good effect to clear it, by the gluten in the bran combining with the impurities in the water and precipitating them.

"W E. of N. Y."—We should think you would hear from the Patent Office soon. There is no means of telling the exact time when your application will be examined.

"J. O. of N. Y"—If you cannot associate some one with you in securing letters patent, a notice of the invention might be of service to you, in case you should wish to prove priority. It is evident from the contents of your letter that you have too many ideas in your head, which effectually prevents any great advance towards the completion of any single one. You will never realize any profit from slumbering inventions. If we were to advise, we should think you had better carry through one of them and see what are the results. No invention is considered safe without the seal of the Patent Office

"A. F. W. of Pa."—Your letter and enclosure has been received and the papers forwarded as per order. We do not think a patent could be obtained for your plan—similar machines are now in use.

"J. B. of Ala."—Your churn is not new, although constructed upon correct principles. An application is now pending for a similar combination.

"M. S. Jr. of Vt."—Your business is now progressing, and will be ready soon.

"A. A. W. of Mich."—Such an apparatus as you present for our attention would be valuable, if made to perform well. You had better try an experiment with it on some of your lake vessels, and report the result. We should think it might work.

"P. B. of Pa."—We have arranged your Caveat and forwarded it to the Patent Office.

"W. H. D. G. of S. C."—$2 received on account of Mr. Z,—papers forwarded to each of you. For particulars in regard to Mr. Bertholt's horse power you, had better address him. He will answer your questions better than we can.

"A. H. of Pa."—Vol. 3 Scientific American forwarded to your address on the 14th inst. We do not know the exact cost of Mowing machines. You had better address the inventors. You will notice an engraving of one in No. 37.

"E. G. F. of Halifax." There is no cheap *hand threshing power* in use here. A hand power could be easily constructed, but we question its utility. There are one, two and three horse power threshers. Messrs. Woodbury of Rochester, N. Y. make good machines. We can easily ascertain the price of one if we knew the power you wanted.

G. H. Marden, of Charlestown, Mass. wishes the party who wrote him from this city, to send on their names, as the letter was not signed.

"G. R. McJ. of Pa."—Your model is so imperfectly made, that we cannot arrive at a clear understanding of its operation. You had better make a pencil drawing, and describe it by letters of reference. At all events this model will not answer the requirements of the Patent Office. Please attend to the matter soon.

"J. H. B. of N. Y."—You are perfectly safe in applying for a patent, on your cheese press, providing it has not been in use over two years. You had better send a model or drawing as soon as convenient.

"C. R. of Vt."—Yours will appear next week.

"L. L. of N. Y."—Both of your specifications and drawings were forwarded to Washington last Monday.

"J.M. Jr. of Mass."—We have been disappointed in getting your model completed as early as we expected, but we now have a renewed promise that it shall be finished this week, which if done we shall be able to furnish your papers for signature early next week. We regret this delay but it has been unavoidable on our part.

"W. & P. of Pa." "W. P. V. of Me." "W. B. of Ct." and M. S. of Me."—The drawings of your machines are executed and as soon as the specifications are prepared, which will be in a few days, we will forward them for your signatures.

"C. R. of Pa." "A. B. and J. J. of N. Y" —Your Caveats have been filed and fees paid at the Patent Office, according to your request.

"R. L. of N. Y." "W. F. of Ct." "B. B. of Me." "R. S. of Pa." and "W. B. H. of R. I." —Your specifications and drawings have been lodged in the Patent Office and fees paid.

Moneys received by Mail on account of Patent Office business, since June 13th :—

R. L. of N. Y. $30. B. B of Me., $10. W F. and W. B. of Ct., each $30.

Notice.

J. Franklin Reigart, Esq. Patent Agent for Lancaster City and County, Pa., is authorised to receive subscriptions for the "Scientific American."

M. Boullemet, Bookseller, Mobile, Ala., is authorized to receive subscriptions for the Scientific American

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Advertisements.

The attention of Railroad, Steamboat and Manufacturing Cos. is invited to J. Cumberland & Brother's

PATENT WHITE METALLIC OIL,

FOR steam engines and heavy machinery of all kinds. For its durability, purity from gum, and superior anti-friction properties, as well as its great economy, it has received the approval of the following gentlemen :—

Messrs. John Corell, Congress Steam Mills, 172 Forsyth st.; J. P. & Thos. Cummings, Chelsea Mills, 25th st.; Hecker & Brother, Cherry st; John Jewett & Sons, 182 Front st.; R. Hoe & Co. Sheriff st.; James Payne, Brooklyn City Mills; James E. Fairbanks & Co, and many others who have been using it a long iime with entire satisfaction.

Manufactured by J. Cumberland & Brother, Patentees, Elizabethport, N. J., to whom orders from a distance should be addressed.

ANDREWS & JESSUP, No. 70 Pine st. New York, Agents, have constantly on hand both the Fluid and Hard Metallic Oil, put up in one to five gallon cans and barrels, at the Manufacturers' Prices. j23 4t*

WATER WHEEL FOR SALE.

A Breast Wheel about 10 feet diameter and 20 feet long with elbow buckets, built of the best materials, in a thorough and workmanlike manner, and has been in use about one year, For particulars address E. GORDON,
j23 tf Taunton, Massachusetts

INFORMATION WANTED.

TO know the whereabouts of John Johnson a native of Scotland, and who sailed for this country from Belfast, Ireland, in 1835, and was shortly after a Pilot on the Hudson River. Any information concerning him will be thankfully received by,
MARTIN KENAN,
j16 3t* Cooperstown, Otsego Co. N. Y.

NOTICE.

☞The Second EXHIBITION of the MARYLAND INSTITUTE for the Mechanic Arts, will be held at Washington Hall, in the City of Baltimore, from Thursday, 27th of September. to 13th October, inclusive. Machines, models, or goods sent to the address of H. Hazelhurst, Corresponding Secretary of the Institute, (expense paid) will be met with immediate attention, and every facility used to exhibit the same to the best advantage. j16 4m

TO IRON FOUNDERS.

FINE ground Sea Coal, an approved article to make the sand come off the Castings easily; fine bolted Charcoal Blaacking; Lehigh fine Dust, and Soapstone Dust for facing Stove Plates, &c. &c.; also, Black Lead Dust, for sale in Barrels, by
GEORGE O. ROBERTSON.
m24 4meow* 303 West 17th st. New York.

FACTORY PROPERTY.

FOR sale at New Preston, Litchfield County, Conn. a Cotton Factory of about one thousand spindles and looms, in good repair, with a new water wheel and gearing, on a never failing stream of sufficient power to drive three thousand spindles, with land and tenements connected. A rare chance for making seamless Grain Bags, for which the machinery is well calculated. For further particulars enquire of W. B. LEONARD.
j16 3t* No. 66 Beaver St.

WATER POWER.

A Valuable Water Power capable of doing an extensive business, situated in Norwalk, Conn, is offered for sale. Enquire of L. M. Stevens, No. 146 Pearl St. New York. or of
J CAMP, JR., or W. C. STREET, Norwalk, Ct.
Norwalk, Ct., June 6, 1849. j16 4t*

A NEW PATENT MACHINE.

HAVING obtained a patent for a self-feeding machine to saw wood TWICE IN TWO at one operation, a model of which can be seen by applying to P. H. Watson, Patent Attorney, Washington, D. C I am now prepared to sell the right for the same, by States or smaller districts, as may best suit the convenience of purchasers. As this is a machine every where wanted, and believed to possess superior merit, it will be to the advantage of mechanics and patent dealers to attend to it.

All communications post paid, and addressed to the subscriber, will receive prompt attention.
DAVID BONNER,
j2 8t* Greenfield, Highland County, Ohio.

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Norwalk, Ct June 1, 1849. j16 3t*

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use. Manufactured at Augusta, Me. and Albany, N. Y. J. G. JOHNSON.
Augusta, Maine, Oct. 28. 1848. o28 1y

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Patent Laws.

The article from "Junius Redivivus," came one day too late for this number. It will appear next week.

For the Scientific American.

Animal Electricity.

There is a flat fish found on the shores of the Mediterranean which has been known for hundreds of years to give benumbing shocks to any one who handles it. It is named the Torpedo, and when it is dissected there are found two honeycomb organs in it near the head on each side and occupy the whole thickness of the fish from breast to back. They consist of a mass of roundish columns that appear upright when the fish lies flat. These columns are supposed to be galvanic piles which in the aggregate make an electric charge. As many as 1182 columns have been found in a large fish, and nerves ramify each column and are distributed throughout in fine filaments.

The back of the torpedo is positive and the belly negative and the electric currents pass through the body between the breast and back. On touching either side of the animal, a shock is received, and by seizing it on both sides, a more intense shock is felt; and after receiving the first, the charge accumulates and discharges again, and a succession of shocks will thus be given until the strength of the fish is exhausted. The electricity of the torpedo is of the same character as a discharge of very small Leyden jars. It is capable of magnetising iron and decomposing compounds on a small scale. The use of this voltaic pile to the animal, seems to be given to it for defence and offence. It launches its diminutive thunderbolts upon all creatures that approach it.

The Electric Eel found in great numbers in the South American swamps, is another living galvanic battery. Its shocks are far more formidable than those of the torpedo.—Men, horses, and other animals are frequently drowned in crossing some of the pools by being stunned from shocks by the electric eel. The electric eel is about five feet long and of a yellow color, resembling some water serpents. Its electrical structure is the same as that of the torpedo, but it is formed of thin plates, which lie in the direction of its length and one end of the pile is at the head and the other at the tail, hence its shocks are most powerful when the head and tail are brought into contact with another animal. In the rivers of Africa there is also another electric fish, called the ***Silurius Electricus***, which has very simple electric organs. It is something like an eel, and is eaten in Egypt.—There are various electric fish beside these.

There is a great amount of electricity produced by the interior processes of the human body, but how much none can tell, as only a small portion can appear in a free state on the surface. As far as the skin acquires a charge, it is found to be positive, but the amount differs at different times, and also in different persons. A developement of positive electricity seems to be identified with health, vigor and freshness of body, for it is changed into negative by exertion, fatigue and cold. A sudden fit of violent exertion will convert the positive into the negative charge, and from this we must infer that nutrition is constantly generating positive electricity, while exertion generates the negative. The juices of the flesh or muscle are constantly acid while the blood circulating through the arteries or veins, is alkaline An acid and alkali with a membrane between them, are capable of causing a current, the acid being positive and the alkali negative, so that the blood would from this cause have a negative charge and the flesh a positive charge

The effects of electricity on the animal system is not much understood. Electric shocks have been successfully applied for paralysis. If from what has been discovered, the body generates a surplus of positive, and the earth negative electricity, and an absence of the positive is injurious to the system, we have a strong argument for having some non conducting substance between the feet and the earth. This is surely the reason why wet feet are so injurious to health, at least to those who wear shoes, &c. while to the savage who goes barefoot a thick horny non-conducting substance is formed on the soles of his feet, that seems to say, "what art cannot achieve, nature can."

Method of Preventing the Oxidation of Iron.

We are indebted to our excellent exchange, the London Patent Journal, for the following curious article by M. F. L. Alamand, read before the St. Petersburg Academy of Science.

"This composition, of a metallic nature, preserves iron and steel from oxidation, by entering into the pores without in any degree affecting their external appearance, or leaving the least blemish; so that steel instruments (including razors,) fire arms, &c., retain their polish, and are in some degree better fitted for use, after having been subjected to the metallic application. Articles, either plain or chased, appear superior to platina, and retain, after the application, all the hieroglyphics characters, figures, letters and other engravings or cuttings, which were there previously.

COMPOSITION OF THE MATERIAL.

Pure Malacca tin	120
Silver filings	4
Yellow tincal	12
Purified bismuth	12
Purified zinc	12
Regulus of antimony	4
Nitre	11
Salt of Persicaria	1

METHOD OF PURIFYING THE METALS.

The tin ought to be melted separately eighteen times. Each melting should remain about twenty minutes exposed to the action of caloric, and the impurities which arise on the surface should be carefully removed; it is thrown afterwards into a ley formed of vine twigs and persicaria (herb) in equal proportions. The bismuth, the regulus of antimony, and the zinc, are also melted separately, but they only require it twice, and they are carefully run into an ingot mould, so that all impurities may remain at the bottom of the crucible. The tincal does not require any purification.

MIXTURE OF THE DIFFERENT SUBSTANCES.

The tin is the first material that is melted; the silver is afterwards added to it in small quantities, and in a few minutes afterwards the tincal; then the bismuth of the zinc in succession. As soon as it is ascertained by the flames that the alloy is effected, the two kinds of salt are thrown in together, and are left to burn with vigor, and the alloy is stirred with an iron rod; after which it is carefully skimmed and poured into a vessel, to be made use of for the metallic application.

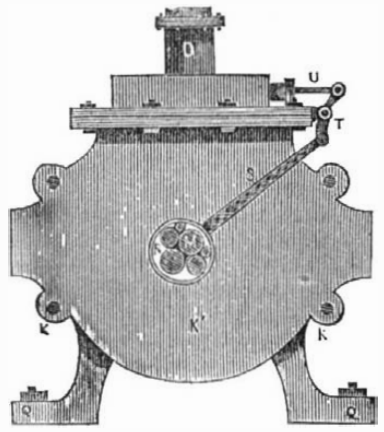
METHOD OF APPLYING THE SUBSTANCE.

Before the piece of iron or steel is dipped in the recipient which contains the metallic mass already liquified, its surface must be rubbed well with a composition of sal ammoniac and cream of tartar, in the proportion of five per cent of tartar to the sal ammoniac; the iron must then be dipped in the melted alloy, where it must remain only for a few seconds, and till it is perceived to be covered with a certain quantity of the metal. It is next placed in a wooden box of its own size, and in which there has been previously put a small quantity of sal ammoniac and cream of tartar in the proportions already indicated. It is again rubbed with a handful of tow, and a small quantity of the powder is put on the surface In the course of this operation the steel loses its color and assumes that of silver. When this is done it is again plunged into the metallic mass for a few seconds, and when it is taken out it is again lightly rubbed with the tow to remove any superfluous particles The article being perfectly clean and shining, it is plunged into a basin of cold water, into which there has been poured a bottle of spirits of wine of 40° of strength, in the proportion of half per cent. After having withdrawn it from the water, the article is rubbed as carefully with some fine sand that has been moistened, to remove the spots of smoke; it is at last rubbed a second time with dry sand, then with linen, and finally with leather. After all these operations, which require great celerity in the execution, the iron will remain impervious to oxygen, and by care it will preserve all its whiteness.

History of the Rotary Engine.

Prepared expressly for the Scientific American.

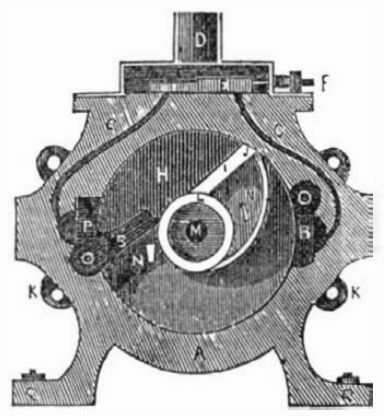
FIG. 66.



PIERRET'S ROTARY.

This rotary is the invention of Joseph Pierret, engineer, London. Fig. 65 is a front elevation, and fig. 67 a vertical section, the same letters applying in both cases to similar corresponding parts. A A, is the cylinder or concentric chamber of the engine, cast in metal and bored in the ordinary manner, so as to render it perfectly fit and smooth for the action of the piston within it to revolve upon its face, and work steam tight; B B, are two valves, which fit into recesses on each side, as shown in the engraving at fig. 67, and caused by the pressure of the steam acting upon their inside surfaces to be forced outwards, and made to rest upon the drum or guide of the revolving piston, which, by extending from one side to the other of the entire width of the cylinder, causes it to form a division or fixed point, from which the steam acts when driving the piston round; these side valves, which may be made of brass or other suitable metal, swing upon centre pins, at one end of each valve, and are curved upon their faces, which curve or segment of a circle is struck in or described from the same centre as the concentric channel, in which the piston travels, so that when the side valve is shut in the recess, as seen at B, fig. 67, the piston may

FIG. 67.



be enabled to pass by and receive the pressure of steam on one side thereof, by reason of such valve aforesaid alternately causing a fixed point for the steam to act against, and a free passage to the motion of the piston; C C, are two steam pipes or passages, cast in the sides of the cylinder and carved in such a manner that their upper ends are inserted in and made flush with the bottom of the slide jacket, whilst their lower ends enter into and supply with steam the openings at the back of the valves B B; D D, is the main steam or throttle pipe, communicating with the boiler, as heretofore. By this arrangement it will be seen that steam entering through the pipe D, will fill the chamber G G, and descend through the passage C, into the recess at the back of the valve B, and cause it to take the position shown in fig. 67, when the expansion of the steam acting within the chamber H, produces the rotation of the piston, and the requisite rotary motion. E, is the steam slide of usual construction, having a slide motion rod F F, attached to and passing through a stuffing box or gland, on the outside of the slide jacket, to the end of which a forked lever head is fixed and mounted upon a bracket bearing, an eccentric arm is then brought in connection with it, which receives motion from the main shaft, and by the action of which the slide is made to traverse the jacket from end to end, and alternately open and close the steam ports C C. as each operation may require. H, is one of the side plates of the engine, bolted to the cylinder by the projecting metal ears K K; I, is a brass surface bar forming the metallic packing, and kept to its work by the pressure of a spring behind it; J, is also another angular piece for the same purpose; L, is a metal ring, embracing the cylindrical part of the piston, the object of which is to ensure the piston's moving steam-tight at each end against the sides of the cylinder, instead of employing other means as heretofore; M M, is the main or driving shaft, which passes through the centre of the piston and is keyed thereto; N N, are two holes or apertures through which the steam escapes from the cylinder; these eduction ports are to be so placed that when the steam is exerting a pressure on one side of the piston, the other side thereof shall be quite free to the action of the said pressure on the other, and so on, thereby causing an uniform rotary motion direct to the propelling-shaft: O O, are the two axles on which the side-valves, B B, hereinbefore described, work; P P, are the two recesses for the reception of the valves as shown; Q Q, are legs cast to the body of the engine, for the purpose of bolting the same to any suitable standard mountings, necessary for the nature of the work, and the situation of the engine.

Argentiferous Galena.

Large bodies of this valuable mineral are found in Arkansas. Silver mines also exist in that State, some of which were worked by the Spaniards prior to the year 1800. Gold mines appear recently to have been found, and Iron to an endless extent. The present workings of Argentiferous Galena are on the estate of the "South Western and Arkansas Mining Company," situate about ten miles from Little Rock. The ore is said to be exceedingly rich. The highest assays have exhibited as much as 140 pounds of silver to the ton of ore. The lowest assays are about 33 oz. The average of silver to a ton of ore is supposed to be about 120 oz.—a presumption founded on the price offered for the ore in England. The importance of even the lowest assay (33 oz.) can be estimated from the fact that, in England, it is considered worth separating for 3 oz.

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